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LAKE STATES FOREST EXPERIMENT STATION • U. S. DEPARTMENT OF AGRICULTURE

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### Forest Area Trends in Minnesota Counties

The total area of forest land in Minnesota, now 19 million acres, has decreased less than 3 percent in the last 30 years. This relatively small loss is due primarily to increased urbanization and new rights-of-way that have been cleared for highways and utility lines. Land-clearing activities have more than offset any additions to forest land from natural restocking and tree planting. Most tree planting is done on land already classified as forest — this does not change the total forest area.

Although the patterns are indistinct, significant changes in forest area have occurred in several counties and certain sections of the State. Counties with the greatest reductions in forest area are Beltrami, Pine, Aitkin, and Roseau. Those with the largest increases include Becker, Otter Tail, and Anoka. Forest area increased in 40 counties between 1953 and 1962, but decreased in another 47 (table 1). Only 7 of the counties in the northern half of the State had increases, and all of the counties in the Red River Valley have less forest area now than a decade ago.

Commercial forest land, at first glance, shows a decrease in area of about 6 percent in the last 10 years. However, this decrease very probably reflects improved survey procedures rather than an actual change in commercial forest acreage. When forest area distributions by ownerships and forest types are available a more accurate analysis of the change can be made. The commercial forest area is now estimated as 17.1 million acres, compared with 18.1 million recorded in the last survey. Newer aerial photos, more widely

dispersed sampling, and more objective methods of site determination account for a part of this decrease, particularly in Beltrami County. A small part of this change resulted from expansion of parks and other reserved recreational areas. The reported decrease in commercial forest land should not result in decreased timber volume because most of the excluded area is marginal for growing tree crops.

Commercial forest land, as a percent of all land, declines across Minnesota from northeast (about 80 percent) to southwest (less than 1 percent). Minnesota's Arrowhead country is in large measure her woodshed, containing all of the most heavily forested counties (fig. 1 on last page).

The sampling error for forest areas from this survey is less than 1.5 percent (at one standard deviation) per million acres, and is somewhat smaller in the northern counties which were sampled more intensively.

The forest area information reported in this Note is part of the results of the Third Minnesota Forest Survey made during 1960-63 by the Office of Iron Range Resources and Rehabilitation and the Lake States Forest Experiment Station in cooperation with other public and private agencies. Other publications giving details of Minnesota forest areas, timber volumes, growth, and cut are being prepared and will be published during the next 12 months.

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TABLE 1. — Minnesota forest areas by county in 1962, and changes since 1953

County	Land area 1/	Forest land 2/				Commercial forest as a percent of area	Change in forest land since 1953	Change in commercial forest land since 1953
		Total	Commer- cial 3/	Noncommercial 4/ Productive: reserve 5/	Unproduc- tive 6/			
	Thousand acres	Thousand acres	Thousand acres	Thousand acres	Thousand acres	Percent	Thousand acres	Thousand acres
Aitkin	1,167.4	900.4	850.6	-	49.8	72.9	-41.7	-43.3
Anoka	272.0	74.4	62.1	-	12.3	22.8	+28.2	+15.9
Becker	841.6	390.1	385.9	3.5	.7	45.8	+42.1	+38.2
Beltrami	1,610.9	1,178.2	993.0	.3	184.9	61.6	-80.3	-227.2
Benton	258.6	35.0	27.3	-	7.7	10.6	-14.9	-21.7
Big Stone	326.4	4.0	3.8	-	.2	1.2	+7	+7
Blue Earth	473.6	33.3	31.4	.1	1.8	6.6	-4.4	-6.3
Brown	392.3	15.8	14.7	.2	.9	3.7	-5.2	-6.1
Carlton	550.4	383.4	367.0	8.4	8.0	66.7	-7.1	-2.4
Carver	229.1	28.4	23.9	-	4.5	10.4	+1.9	-2.6
Cass	1,313.9	1,023.8	1,006.4	-	17.4	76.6	+2.8	-11.5
Chippewa	372.5	8.5	7.8	.3	.4	2.1	+2.4	+1.7
Chisago	268.2	66.1	52.9	.1	13.1	19.7	-2.0	-15.0
Clay	672.0	24.9	20.0	.1	4.8	3.0	+5.6	+7
Clearwater	643.2	394.5	367.7	19.4	7.4	57.2	-4.6	-11.9
Cook	897.9	868.9	710.0	157.0	1.9	79.1	+1.6	-12.8
Cottonwood	409.6	7.1	6.7	-	.4	1.6	+2.7	+2.3
Crow Wing	639.4	449.5	447.5	-	2.0	70.0	-15.5	-11.9
Dakota	365.4	42.1	33.6	-	8.5	9.2	+5.5	-3.0
Dodge	278.4	9.0	8.5	-	.5	3.0	-5.1	-5.6
Douglas	407.7	48.2	42.3	.3	5.6	10.3	+6.3	+6
Faribault	456.3	13.6	12.8	-	.8	2.8	-.1	-.9
Fillmore	549.8	90.1	83.7	-	6.4	15.2	-5.1	-8.9
Freeborn	449.3	16.4	15.4	.1	.9	3.4	+2.3	+1.4
Goodhue	485.1	71.1	63.0	.6	7.5	13.0	+4.6	-1.6
Grant	356.5	5.4	5.1	-	.3	1.4	+6	+4
Hennepin	361.6	36.8	30.6	.2	6.0	8.5	+5.4	-8
Houston	361.6	127.8	114.8	.4	12.6	31.7	+1.9	-7.5
Hubbard	596.5	445.8	440.1	3.8	1.9	73.8	+5	-5
Isanti	282.9	60.9	51.2	-	9.7	18.1	-4.1	-13.8
Itasca	1,704.3	1,480.9	1,411.9	1.4	67.6	82.8	-16.1	-45.8
Jackson	446.7	6.8	6.2	.2	.4	1.4	-1.3	-1.7
Kanabec	336.0	127.4	154.6	-	22.8	46.0	+9.1	-11.5
Kandiyohi	527.4	23.2	21.2	.7	1.3	4.0	-11.6	-13.2
Kittson	719.4	119.7	94.2	.5	25.0	13.1	-1.7	-10.1
Koochiching	2,002.6	1,868.7	1,574.7	-	294.0	78.6	+7.5	+52.8
Lac qui Parle	494.7	8.6	8.1	-	.5	1.6	-.7	-1.0
Lake	1,364.5	1,306.8	1,104.0	173.3	29.5	80.9	-8.6	-34.6
Lake of the Woods	837.1	623.4	528.5	-	94.9	63.1	-26.0	-26.4
Le Sueur	282.2	31.2	29.5	-	1.7	10.5	+6.1	+4.4
Lincoln	345.6	5.4	5.1	-	.3	1.5	+2.6	+2.3
Lyon	456.3	6.7	5.9	.4	.4	1.3	+1.0	+6
Mahnomen	367.4	128.8	126.6	-	2.2	34.5	-16.1	-18.3
Marshall	1,152.0	203.2	151.6	.2	51.4	13.2	-24.1	-74.5
Martin	452.5	7.2	6.8	-	.4	1.5	+3.0	+2.6
McLeod	318.7	11.0	10.4	-	.6	3.3	-1.1	-1.7
Meeker	396.8	16.6	15.7	-	.9	4.0	-.5	-1.3
Mille Lacs	363.5	157.5	131.3	6.1	20.1	36.1	-14.1	-40.0
Morrison	727.0	230.3	200.3	.3	29.7	27.6	-15.0	-42.7
Mower	449.9	9.9	9.4	-	.5	2.1	-3.5	-4.0
Murray	453.1	5.1	4.6	.2	.3	1.0	+1.2	+9
Nicollet	293.8	18.2	17.1	.1	1.0	5.8	-1.5	-2.4
Nobles	455.7	3.3	3.1	-	.2	.7	+8	+6
Norman	566.4	33.3	30.0	-	3.3	5.3	-7.6	-10.9
Olmsted	419.2	52.9	47.9	-	5.0	11.4	+4.9	+9
Otter Tail	1,280.0	268.2	232.3	.1	35.8	18.1	+23.7	-11.7
Pennington	398.1	44.0	35.6	-	8.4	8.9	-18.8	-27.2
Pine	903.7	515.9	459.4	26.6	29.9	50.8	-42.6	-67.1
Pipestone	297.0	1.9	1.8	-	.1	.6	+7	+6
Polk	1,287.7	91.8	74.5	-	17.3	11.8	-18.6	-33.2



Table 1 (cont'd)

County	Land area <sup>1/</sup>	Forest land <sup>2/</sup>					Commercial forest as a percent of area	Change in forest land since 1953	Change in commercial forest land since 1953
		Total	Commer- cial <sup>3/</sup>	Noncommercial <sup>4/</sup>	Productive: Unproduc- tive <sup>5/</sup> <sup>6/</sup>	reserve <sup>5/</sup>			
	Thousand acres	Thousand acres	Thousand acres	Thousand acres	Thousand acres	Percent	Thousand acres	Thousand acres	
Pope	435.8	18.2	17.2	-	1.0	3.9	+3.3	+2.4	
Ramsey	102.4	8.7	6.6	-	2.1	6.4	+1.9	-.2	
Red Lake	276.5	43.1	36.9	.1	6.1	13.3	-9.8	-15.8	
Redwood	559.3	10.9	10.3	-	.6	1.8	-4.3	-4.7	
Renville	627.2	15.0	14.2	-	.8	2.3	-1.5	-2.3	
Rice	316.8	25.7	23.0	.5	2.2	7.3	+4.8	+2.1	
Rock	310.4	2.0	1.9	-	.1	.6	+2	+1	
Roseau	1,072.6	336.6	271.0	-	65.6	25.3	-37.0	-99.3	
St. Louis	4,019.8	3,464.6	3,204.3	95.2	165.1	79.7	+4.9	-29.6	
Scott	225.3	27.0	23.6	-	3.4	10.5	-1.0	-2.4	
Sherburne	280.3	59.1	42.3	-	16.8	15.1	+6	-16.2	
Sibley	371.8	24.9	23.5	-	1.4	6.3	+5.0	+3.7	
Stearns	867.8	103.1	78.2	-	24.9	9.0	+8.6	-15.8	
Steele	272.0	10.5	9.7	.2	.6	3.6	+2.4	+1.7	
Stevens	364.8	2.5	2.4	-	.1	.7	-.8	-.9	
Swift	478.1	8.4	7.8	.1	.5	1.6	-2.9	-3.3	
Todd	606.1	147.6	128.3	-	19.3	21.2	-17.1	-36.4	
Traverse	366.1	2.6	2.5	-	.1	.7	-.3	-.4	
Wabasha	333.4	65.3	51.6	.1	13.6	15.5	+4	-10.0	
Wadena	343.0	132.5	130.0	.7	1.8	37.9	-8.1	-10.6	
Waseca	265.6	12.3	11.6	-	.7	4.4	-2.3	-2.9	
Washington	249.6	33.3	26.9	.4	6.0	10.8	+2.5	-3.8	
Watonswan	277.1	5.4	5.1	-	.3	1.8	+1.1	+8	
Wilkin	481.3	2.1	2.0	-	.1	.4	-.4	-.5	
Winona	398.7	114.7	96.5	.9	17.3	24.2	-1.3	-13.6	
Wright	429.5	49.4	42.6	-	6.8	9.9	-3.1	-9.9	
Yellow Medicine	485.1	10.5	9.9	-	.6	2.0	-.2	-.8	
State total	51,205.8	19,047.4	17,062.0	503.1	1,482.3	33.3	-296.3	-1,035.6	

<sup>1</sup> 1960 Bureau of Census.<sup>2</sup> Land at least 10 percent stocked by forest trees of any size, or formerly having such tree cover, and not currently developed for nonforest use. Does not include lands currently developed for nonforest use such as urban or thickly settled residential or resort areas, city parks, orchards, improved roads, or improved pasturelands. The minimum area classified as forest land was 1 acre. Roadside, streamside, and shelterbelt strips of timber with crown width of 120 feet wide qualified as forest land. Unimproved roads and trails, streams, and clearings in forest areas were classified as forest if less than 120 feet in width.<sup>3</sup> Forest land which is producing or capable of producing crops of industrial wood and not withdrawn from timber utilization.<sup>4</sup> Unproductive forest land incapable of yielding crops of industrial wood because of adverse site conditions and productive public forest land withdrawn from commercial timber use through statute or administrative regulation.<sup>5</sup> Productive public forest land withdrawn from timber utilization through statute or administrative regulation.<sup>6</sup> Forest land incapable of yielding crops of industrial wood because of adverse site conditions.<sup>7</sup> Differs slightly from published Koochiching County Report due to computer rounding.



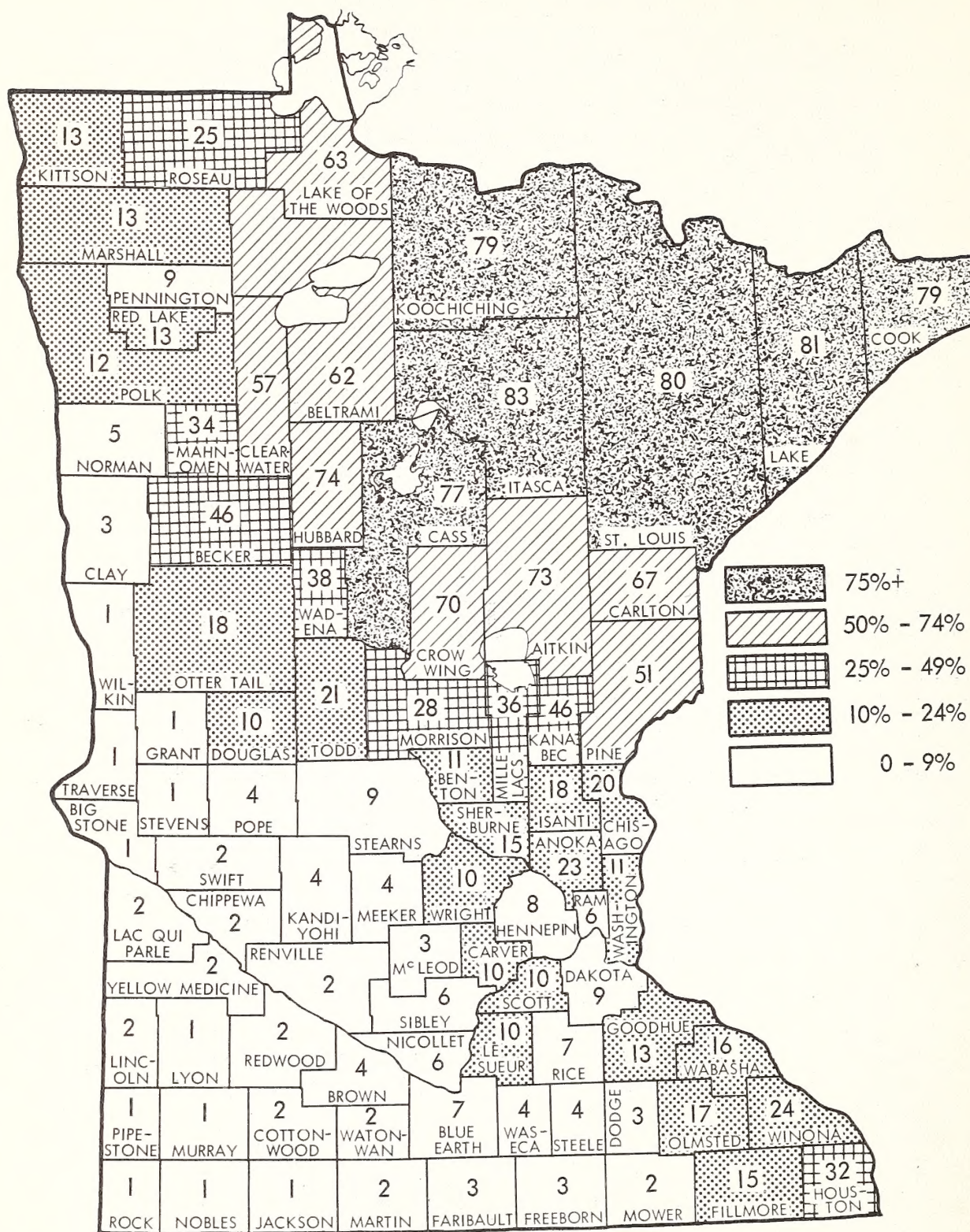


FIGURE 1. — Commercial forest area as a percent of all land area.



